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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,608	04/30/2001	Boris Felts	PHFR 000044	4772

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EXAMINER	
COUSO, YON JUNG	
ART UNIT	**PAPER NUMBER**
2625	

DATE MAILED: 12/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/846,608	FELTS ET AL.	
	Examiner	Art Unit	
	Yon Couso	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-4, 7, 10-12* is/are rejected.

7)☒ Claim(s) *5,6,8 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Applicant's arguments filed August 11, 2004 have been fully considered but they are not persuasive.

a. The objection made to the title has been withdrawn.

b. The objection made to claims 7-9 has been overcome by the amendment made to the claims.

c. The applicants argue that the Lin does not teach or disclose, "describes the state of a set of pixels" or "the state of a single pixel" as is recited in the claims. The examiner disagrees. The applicants are reminded that the examiner is entitled to give the broadest reasonable interpretation to the language of the claims. Therefore, the examiner is not limited to applicant's limited interpretation which is not specifically set forth in the claims, In re Tanaka et al 193 USPQ, 139 (CCPA 1977). Lin discloses that the flags "off/on" are added to each coefficient of the spatio-temporal tree in view of a progressive transmission of the most significant bits of the coefficients. These flags being such that at least one of them describes the state of a set of pixels and at least another one describes the state of a single pixel using different sets of bits that are either on or off due to a binary state for single pixels and sets of pixels as noted in section 3 on pages 763-764, and progressive transmission is explicitly provided by Lin in section 1 on page 762, and each coefficient tested based on significance. Without further defining what "the state of a set of pixels" or "the state of a single pixel" is, Lin broadly reads on the claims as presently written.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 10, 11, and 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by Lin et al., 3D Listless Zerotree Coding for Low Bit Rate Video.

For claims 1 and 10, an encoding method for the compression of a video sequence divided in groups of frames decomposed by means of a three-dimensional (3D) wavelet transform leading to a given number of successive resolution levels corresponding to the decomposition levels of said transform, said method being based on a hierarchical subband encoding process leading from the original set of picture elements (pixels) of each group of frames to transform coefficients constituting a hierarchical pyramid, and a spatio-temporal orientation tree--in which the roots are formed with the pixels of the approximation subband resulting from the 3D wavelet transform and the offspring of each of these pixels is formed with the pixels of the higher subbands corresponding to the image volume defined by these root pixels--defining the spatio-temporal relationship inside said hierarchical pyramid is provided by Lin in at least section 1 and Figs. 1-2 on pages 763-763, where resolution levels are provided by at least the parent-child relation and levels, and offspring clearly belong to the higher subbands, since the roots, from which the offspring descendants are derived, exist in the lower bands and are not offspring, since they have no parents, and roots explicitly have children, i.e. offspring. The initial subband structure of the 3D wavelet transform is preserved by scanning the subbands one after the other in an order that respects the parent-offspring dependencies formed in said spatio-temporal tree is considered

provided by Lin by grouping the 3D wavelet transform subband structure into parent-offspring dependencies in section 2 on pages 762-763. Flags "off/on" are added to each coefficient of the spatio-temporal tree in view of a progressive transmission of the most significant bits of the coefficients, these flags being such that at least one of them describes the state of a set of pixels and at least another one describes the state of a single pixel is provided by Lin by using different sets of bits that are either on or off due to a binary state for single pixels and sets of pixels as noted in section 3 on pages 763-764, and progressive transmission is explicitly provided by Lin in section 1 on page 762, and each coefficient tested based on significance.

As for claim 11, Lin teaches that the code is stored in the memory (page 762, column 1, line 26-35).

As for claim 12, Lin's coding system inherently teaches input/output device in communication with the processor and the memory to implement the coding technique disclosed in the reference.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-4 and 7are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al., 3D Listless Zerotree Coding for Low Bit Rate Video, as applied to claim 1

above, and further in view of Tham et al., Highly Scalable Wavelet-Based Video Codec for Very Low Bit-Rate Environment.

For claim 2, Lin provides for spatial and temporal scanning, as the encoding of Lin is directly based on the spatial and temporal coordinates, and encodes for each bitplane in turn, and, the temporal and spatial resolutions are inside each other as taught by Lin in at least section 3. Lin does not explicitly provide for resolution flags being introduced between any two spatial scales, but is conventional and well known. Introducing resolution flags between any two spatial scales is provided by Tham in at least paragraphs IV.A.2 and IV.B.2-3 on pages 17-19, where resolution flags are explicitly placed between any two spatial scales. Lin can use the resolution flags of Tham in demarcating the encoded bitstream, since Tham is not only in the same field of endeavor, but also the same type of hierarchical 3D wavelet multiresolution zerotree compression system. It would've been obvious to one having ordinary skill in the art at the time the invention was made to use the resolution flags of Tham, since this provides for the advantage of at least the capability of choosing different display resolutions by decoding only pertinent portions of the bitstream in terms of spatial and temporal resolutions, and because Tham reorders significant coefficients by prioritizing the scanning sequence based on, inter alias, temporal and spatial scales.

For claim 3, Lin provides for spatial and temporal scanning, as the encoding of Lin is directly based on the spatial and temporal coordinates, and encodes for each bitplane in turn, and the temporal and spatial resolutions are inside each other as taught by Lin in at least section 3. Lin does not explicitly provide for resolution flags being

introduced between any two temporal scales. Introducing resolution flags between any two temporal scales is provided by Tham in at least paragraphs IV.A.2 and IV.B.2-3 on pages 17-19, where resolution flags are clearly placed between any two temporal scales. Lin can use the resolution flags of Tham in demarcating the encoded bitstream, since Tham is not only in the same field of endeavor, but also the same type of hierarchical 3D wavelet multiresolution zerotree compression system. It would've been obvious to one having ordinary skill in the art at the time the invention was made to use the resolution flags of Tham, since this provides for the advantage of at least the capability of choosing different display resolutions by decoding only pertinent portions of the bitstream in terms of spatial and temporal resolutions, and because Tham reorders significant coefficients by prioritizing the scanning sequence based on, inter alias, temporal and spatial scales.

For claim 4, Lin provides for intermediate tree scanning, as different frequency bands are scanned, and encodes on a bitplane basis, and the temporal and spatial resolutions are jointly inside each other as taught by Lin in at least section 3. Lin does not explicitly provide for resolution flags being introduced between any two-spatial/temporal scales. Introducing resolution flags between any two-spatial/temporal scales is provided by Tham in at least paragraphs IV.A.2 and IV.B.2-3 on pages 17-19, where resolution flags are explicitly placed between any two-spatial/temporal scales. Lin can use the resolution flags of Tham in demarcating the encoded bitstream, since Tham is not only in the same field of endeavor, but also the same type of hierarchical 3D wavelet multiresolution zerotree compression system. It would've been obvious to

one having ordinary skill in the art at the time the invention was made to use the resolution flags of Tham, since this provides for the advantage of at least the capability of choosing different display resolutions by decoding only pertinent portions of the bitstream in terms of spatial and temporal resolutions, and because Tham reorders significant coefficients by prioritizing the scanning sequence based on, inter alias, temporal and spatial scales.

As for claim 7, Lin provides for intermediate tree scanning, as different frequency bands are scanned, and encodes on a bitplane basis, and the temporal and spatial resolutions are jointly inside each other as taught by Lin in at least section 3. Lin does not explicitly provide for partially decoding the bitstream between two resolution flags, leading to a lower resolution/frame rate reconstructed video sequence. Introducing partially decoding the bitstream between two resolution flags, leading to a lower resolution/frame rate reconstructed video sequence is provided by Tham in at least paragraphs IV.A.2 and IV.B.2-3 on pages 17-19, where video codec is used to construct a lower resolution/frame rate. Lin can use the resolution flags of Tham in demarcating the encoded bitstream, since Tham is not only in the same field of endeavor, but also the same type of hierarchical 3D wavelet multiresolution zerotree compression system. It would've been obvious to one having ordinary skill in the art at the time the invention was made to use the resolution flags of Tham, since this provides for the advantage of at least the capability of choosing different display resolutions by decoding only pertinent portions of the bitstream in terms of spatial and temporal resolutions, and

because Tham reorders significant coefficients by prioritizing the scanning sequence based on, inter alias, temporal and spatial scales.

4. Claims 5-6, 8, and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yon Couso whose telephone number is (703) 305-4779. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YJC

December 23, 2004

YON J. COUSO
PRIMARY EXAMINER